



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

APR 26 2005

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

Mr. John Stephenson  
Director  
Natural Resources and Environment  
Government Accountability Office  
Washington, D.C. 20548

Dear Mr. Stephenson:

Thank you for the opportunity to review and comment on the Government Accountability Office (GAO) draft report entitled "Perchlorate: A System to Track Sampling and Cleanup Results Is Needed" (GAO-05-462). The Environmental Protection Agency (EPA) appreciates GAO's thoroughness in researching and reporting on the extent of perchlorate contamination, actions to clean up existing contamination, and studies on potential health risks of perchlorate.

EPA agrees with the report's conclusion that perchlorate contamination has been found in the groundwater, surface water, drinking water, or soil of 37 U.S. states and commonwealths. EPA also agrees with the report's finding that defense-related activities have been found to be associated with perchlorate detections. EPA does not agree with the proposed recommendation, cited on page 25, that EPA "establish a formal structure to centrally track and monitor perchlorate detections and the status of cleanup efforts across the federal government and state agencies."

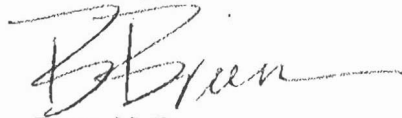
Enclosed are our comments on specific issues for GAO's consideration when preparing the final report.

EPA already has significant information and data on perchlorate concentrations in various environmental media. Much of the information is obtained from our partners in other federal agencies and States and by private parties, among others. The currently-available information indicates the extent of contamination nationally. While it's true EPA does not have all the data a tracking system could provide, as GAO recommends, its benefits are unclear.

Moreover, the development and maintenance of a new tracking system would require additional resources or the redirection of resources from other vital ongoing environmental activities. In order to justify a tracking system, EPA would have to analyze its associated costs and benefits and weight them against projects in other environmental programs. If the benefits of a new large and complex system are unclear, it is unlikely that EPA would fund it, especially when current information on perchlorate contamination is sufficient.

Thank you for this opportunity to review and comment on the draft report on perchlorate contamination.

Sincerely,

A handwritten signature in dark ink, appearing to read "Breen", with a long horizontal flourish extending to the right.

Barry N. Breen

Principal Deputy Assistant Administrator

Enclosure

**EPA Comments on GAO Draft Report,  
“Perchlorate: A System to Track Sampling and  
Cleanup Results Is Needed” (GAO-05-462)**

GAO Highlights, 1<sup>st</sup> paragraph, 1<sup>st</sup> sentence. Should the document state that the levels ranged from a minimum reporting level of less than 4 parts per billion? We know that the levels were from below 4 ppb and should probably reflect such.

GAO Highlights, 1<sup>st</sup> paragraph and page 11. Add clarifying language regarding sites in Texas stating that “nearly all the sites in Texas appear to represent naturally-occurring perchlorate in the West Texas high plains.” Please include additional language that notes that 105 out of the 118 Texas sites are from the Texas Tech study and aren’t cleanup sites.

GAO Highlights, 3<sup>rd</sup> paragraph, 4<sup>th</sup> sentence. This sentence should be modified as follows: “Based on the Academy’s report, EPA revised its reference dose which when used to calculate a Drinking Water Equivalent Level (DWEL) is equivalent to 24.5 parts per billion in drinking water. A DWEL assumes that all exposure comes from drinking water.”

Page 1, 1<sup>st</sup> paragraph. Even if perchlorate makes up more than half of the weight of most solid rocket propellants, it still seems inappropriate to refer to perchlorate as “the primary ingredient” in rocket propellant or solid rocket propellant, as is done in several locations in the draft document. The chemical reaction which propels rockets requires at least one oxidizing agent and at least one reducing agent. Although oxygen makes up most of water by weight, it would seem similarly inappropriate to refer to oxygen as “the primary ingredient in water,” when hydrogen is also essential. Using the phrase “a primary ingredient” would be better. In addition, the report could state GAO’s findings about the relative quantities of perchlorate in solid rocket propellants.

Page 1, 2<sup>nd</sup> paragraph, 4<sup>th</sup> sentence. This sentence should be modified as follows: “This dose would be equivalent in drinking water to an adult, assuming a body weight of 70 kg and consuming two liters of drinking water per day, of 24.5 parts per billion of perchlorate.”

Page 3, Results in Brief, 2nd sentence. It would be more accurate to say that the levels of perchlorate found were at levels less than 4 ppb or as low as 1 ppb or less.

Page 3. Please revise the phrase “EPA’s provisional cleanup level of 18 ppb” to read “the upper limit of EPA’s provisional cleanup guidance”.

Page 3, line beginning “EPA and state officials...” (8 lines from bottom). This seems to imply that officials are taking no actions, although the discussion on the next page shows that a remarkable level of response is underway. Perhaps GAO is trying to distinguish between treatment at the water supply system versus source cleanup, but even in this case

there are numerous water supply treatment systems in operation. A clarifying qualifier that retains the point might be to start the sentence, "(Only) a fraction of the sites are being actively addressed, and EPA and state officials told us..."

Page 5, 2<sup>nd</sup> paragraph, last sentence. This sentence should be modified as follows: "The reference dose of 0.0007 milligrams per kilogram of body weight when used to calculate a Drinking Water Equivalent Level (DWEL) is equivalent to a drinking water concentration of 24.5 parts per." A DWEL assumes that all exposure comes from drinking water."

Page 6, 1<sup>st</sup> full sentence. Precede the sentence with "As estimated by EPA from manufacturer's (1998) data," 90 percent....

Page 6, top paragraph, last sentence. Replace existing sentence with the following: "Based on the drinking water conversion, EPA identified a corresponding provisional cleanup level for perchlorate of between 4 and 18 parts per billion."

Page 8, top paragraph, 1<sup>st</sup> full sentence. This sentence should be modified as follows: "The new reference dose which when used to calculate a DWEL is equivalent to 24.5 parts per billion."

Page 9, Environmental Laws, Regulations, and Federal Policy Covering Hazardous Substances, line 5. Add ", pollutant or contaminant".

Page 10, 3<sup>rd</sup> paragraph, 1<sup>st</sup> sentence. Please add the words "to exist" at the end of the sentence.

Page 11, Perchlorate Has Been Found At Almost 400 Sites Across the US, 3<sup>rd</sup> sentence. Similar comment as above as to whether we should be reporting the minimum level of perchlorate found at 4 ppb or less. Also, in the 3<sup>rd</sup> sentence, add the words "the upper limit of" after 18 parts per billion.

Page 12, sentence right before Figure 1. Please modify as follows: "We found 245 sites had perchlorate concentrations equal to or less than 18 parts per billion, the upper limit of EPA's provisional cleanup level, and 267 sites had perchlorate concentrations less than 24.5 parts per billion, the drinking water equivalent level calculated using EPA's newly established reference dose."

Page 13. The Texas High Plains study provides credible results from over 100 different wells (called "sites" in this document) and reasonably concludes that there is one regional phenomenon to account for all the detections. This unique situation has not been replicated in other arid areas with fairly good monitoring for perchlorate (California, Arizona, Utah and the rest of New Mexico). The overwhelming impact of these data on Figure 2 and related statements can be quite misleading to an undiscerning reader. At a minimum, the "Naturally Occurring" category should be clearly labeled as "West Texas" or "Texas High Plains" since all the data are from this one phenomenon. It would be

even better to segregate these data from the remaining information for purposes of the graphics and analysis of the data. Similarly, the Colorado River sites should receive their own category, or the "Perchlorate manufacturing" category should be clearly labeled as "Colorado River." Additionally, since we really do not know how much contamination is due to natural causes, suggest deleting the sentence stating that natural occurrence was found at 105 sites and replacing it with "The extent of naturally occurring perchlorate is not known, however, officials in the State of Texas report that contamination at 105 locations in Texas is due to natural occurrence."

Page 14, top paragraph, 1<sup>st</sup> full sentence. Modify this sentence as follows: "Only 14 of the 153 public drinking water systems had concentration levels above 24.5 parts per billion, the drinking water equivalent level calculated using EPA's revised perchlorate reference dose."

Page 16, Various Environmental Laws, Regulations, and Provisional Standards Are Used by Federal and Some State Agencies to Sample and Clean up Perchlorate, 2<sup>nd</sup> paragraph under this section. In the 1<sup>st</sup> sentence, it cites certain statutory authorities that have been utilized to respond to releases. Since the Safe Drinking Water Act has also been used, that should also be referenced. Also, 1<sup>st</sup> bullet under this paragraph, modify the last sentence as follows: "EPA is providing bottled water to certain persons until an uncontaminated drinking water supply becomes available."

Page 17. The bullet on McGregor Naval implies that the 4 ppb was based on the Texas state action level at the time, when in fact the 4 ppb in the McGregor permit is based upon the detection level attainable at that time.

Page 18. The statement that 9 states have defined a level that is harmful may not be entirely accurate. Some states have health based levels, while others have action levels that require reporting or sampling. It would be safer to delete the first part of the sentence and replace it with "Nine states have established non-regularity action levels or advisories..."

Page 20, 1<sup>st</sup> line. Please add the words "to exist" at the end of the sentence so that it would read, "...as a result of DOD activities and human exposure is likely to exist."

Page 21. Apache Nitrogen Products is not a good example of sites where EPA required cleanup, and the statement is factually inaccurate since we have not yet officially required ANP to clean up perchlorate. We are currently in the Proposed Plan development stage, and are planning to issue a ROD amendment later this year. We suggest that the Aerojet Superfund Site, a rocket manufacturing facility in Rancho Cordova, CA, be used as an example, since there actually is an enforceable decision in place (a ROD). The second sentence regarding evaluation of existing treatment facility at ANP would not strictly apply to the Aerojet site.

In the next paragraph, there is no formal requirement in place to require Unidynamics to clean up perchlorate. Unidynamics responded to perchlorate contamination of a public

water supply well by supplying an alternative supply line, and they did a "treatability study" that treated considerable amounts of contaminated groundwater. We suggest that this example is not necessary and could be omitted. This is one site where policy issues regarding perchlorate are coming into play as we approach a formal decision. Alternatively, rather than saying "...EPA required Unidynamics.." perhaps "...Unidynamics, an Arizona propellant manufacturer and a CERCLA superfund site, responded to EPA's concern for perchlorate cleanup at the site."

Page 21 – Page 22. The report refers to each of two companies as "an Arizona explosives manufacturer and a CERCLA Superfund site..." These references are confusing. Although the term "NPL site" has a clear meaning, the terms "CERCLA site" or "superfund site" do not. Also, a company cannot be a "site".

Page 22, 1<sup>st</sup> full paragraph, 1<sup>st</sup> sentence. The sentence is misleading. CERCLA responses are discretionary, and do not depend on a "federal requirement" to be done.

Page 24, Conclusions, 1st sentence. Similar comment made before as to whether it is appropriate to characterize the range of perchlorate concentrations from a low of 4 to millions of parts per billion. Again, since we know that perchlorate levels have been found at much lower levels, it seems more appropriate to characterize as such.

Pages 29-49, Appendix II. There are inconsistencies between the EPA and GAO data. Some of these may be a matter of timing. Others appear to be related to GAO's use of other data sources, e.g. DOD, NASA, DOE, California's Division of Toxics and Substance Control, other states, etc. OSWER would like the opportunity to discuss these inconsistencies and the various reasons for them with GAO, as appropriate.

Region 4 has identified an additional perchlorate site (see below). This affects Table 1, Figures 1 and 2, and various summary statements throughout the text.

Table 1

State: NC

Facility/Site Name: Former Camp Butner, Granville and Durham Counties

Amount: 10.3 ppb

Media: Drinking Water (private wells)

Cleanup status: none; none anticipated

Date of First Detect: January 2005

Figure 1

NC number changes from "5" to "6"

Figure 2

The January 2005 report on Camp Butner states that possible sources of the detected perchlorate include military munitions and fertilizer.

Region 7 provides the following update:

Page 37, Line 146 - City of Ewart - Resampling results were no detect -recommend removal from list.

Page 37, Line 147 - City of Hills - Resampling results a new high detect at 372 ppb.

Page 37, Line 148 - City of Napier - Resampling results were no detect - recommend removal from list.

Page 37, Line 182 - City of Lewiston - Resampling results were no detect-recommend removal from list.

Page 38, Line 183 - City of North Platte - We have not been able to confirm this detection in any Superfund or RCRA activities; we recommend removal from list until detection can be verified.

Page 63, 1<sup>st</sup> full paragraph, 10<sup>th</sup> line. Revise the sentence beginning with “Under these provisions,...” to the end of the paragraph to read: Under these provisions, “DOD has responded to perchlorate contamination on military installations and facilities. CERCLA establishes prohibitions and requirements for contaminated sites, provides for the liability for hazardous substances at these sites, and provides for the use of Hazardous Substances Superfund, a trust fund to provide for cleanup, for example, when a responsible party cannot be identified. The law authorizes short-term response, where actions may be taken to address releases or threatened releases requiring prompt response, and long-term response where actions may be taken to permanently reduce the danger associated with a release. EPA identifies the highest-priority sites listing them on the National Priorities List (NPL).”

Page 64, last paragraph. Revise paragraph as follows: “Under section 107 of the Federal Facilities Compliance Act of 1992, EPA was required, in consultation with DOD and the states, to issue a rule identifying when military munitions become subject to hazardous waste regulation under RCRA, and to provide for protective storage and transportation of that waste. Under the rule issued by EPA, used or fired military munitions become waste subject to RCRA regulation if, among other things, (1) they are transported off range for waste management purposes or (2) they or their constituents are recovered, collected and then disposed of by burial or landfilling on or off a range. Unexploded, used, and fired military munitions are known sources of perchlorate. Under RCRA, as amended by the FFCA, DOD installations may be required to sample and monitor on- or off-range for perchlorate as well as other contaminants associated with military munitions.”

Page 65. In the 1<sup>st</sup> sentence, delete the phrase “setting maximum contaminant level goals and.” As originally written, the sentence states that maximum contaminant level goals are “national primary drinking water regulations” that “must be met” by water systems. Neither statement is true as a matter of law. The deletion cures this defect.

Page 65. In the 2<sup>nd</sup> paragraph, 4<sup>th</sup> sentence. Change “fewer than 10,000” so that it reads “10,000 or fewer.”

Page 65. In the 2<sup>nd</sup> to last sentence, delete “at any point between” and replace it with “during” because PWSs are sampled quarterly if they used a surface water source and 2 times per year if they used a ground water source.